

Work Order ID 103837

July-02-13 10:52:19 AM

103837

to Rev A Day 5 13/07/18

PRELIMINARY ISSUE

Page 1

Item ID: D4855-3

Accept

N900040100

Setup Start

NS1

Revision ID: PRELIM

Item Name: Antenna Bracket

Stop

NS2

Start Date: 7/02/13

Start Qty: 4.00

4

Cust Item ID:

Required Date: 7/05/13

Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D4855

PA4 13-07-02

100

Cut blanks as per folio

0.00

100

Bandsaw

Memo

0.00

Jeaspa Bandsaw

CUT BLANK AT 3.000"

15 13-07-02 x4

110

0.00

110

HAAS I

HAAS CNC VERTICAL MACHINING #1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FB200

DWG REV: *PA4*

FOLIO REV: *AA*

B.A 13/07/02
13-07-03

4 1 DAS 08 0-00

2- deburr and break all sharp edges

DQA: Ante Date: 13/08/06

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: KH Date: 13/7/19

Work Order update only ☐

Work Order: <u>103837</u> Part No. <u>D4855-3</u> NCR No. <u>13-2863</u>	DISPOSITION Rework <input type="checkbox"/> Scrap <input checked="" type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input checked="" type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input checked="" type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input checked="" type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design		13/07/02	110	1	One part was Scrap during machining. Tool didn't retract high enough when moving in y axis. Tool left a mark on part.	S 13/07/02 022012	Scrap and replace - Program error. - Program was Fix <div>AFS</div> <div>13/07/02</div> \$ 202,560.	<div>AFS</div> <div>13/07/02</div>	<div>278</div> <div>137.8</div>	S 13/07/02 022012
Doc/Data	Q									
Equip/Tooling										
Handling/Pre										
Material										
Operator										
Offset/Setup										
Process										
Supplier										
Training										
Transport										
Unapproved										

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input checked="" type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Work Order ID 103837

103837

Page 2

July-02-13 10:52:19 AM

Item ID: D4855-3 Accept *N900040100* Setup Start *NS1*
 Revision ID: PRELIM Stop *NS2*
 Item Name: Antenna Bracket
 Start Date: 7/02/13 Start Qty: 4.00 *4* Cust Item ID:
 Required Date: 7/05/13 Req'd Qty: 4.00 *4* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00				4	1		DAS 08 9-89
			D.A. 13/07/02 13-07-03						
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00				4			Inspected as per DWP
			B-7.8						
140 *140* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00				4			24613.79

Work Order ID 103837

July-02-13 10:52:19 AM

D 4855-3

103837

Page 3

Item ID: D4855-3

B 103837

Accept

N900040100

Setup Start *NS1*

Revision ID: PRELIM

Stop *NS2*

Item Name: Antenna Bracket

Start Date: 7/02/13 Start Qty: 4.00

4

Cust Item ID:

Required Date: 7/05/13 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

QC7-Inspect Chemical Conversion Coat

0.00

150

QC

Memo

0.00

Quality Control

4x M/F 13/07/10

160

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

160

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

7:50
320°F
8:10

4x M/F 13/07/10

170

QC3- Inspect Part Finish

0.00

170

QC

Memo

0.00

Quality Control

4 x d M 13/07/10

MA25620

Work Order ID 103837

103837

Page 4

July-02-13 10:52:19 AM

Item ID: D4855-3 Accept *N900040100* Setup Start *NS1*
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 Start Date: 7/02/13 Start Qty: 4.00 *4* Cust Item ID:
 Required Date: 7/05/13 Req'd Qty: 4.00 *4* Customer:
 Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Identify as per dwg & Stock Location: _____	0.00							
180			DSI 9654-011						
Packaging	Memo	0.00							
Packaging									
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.00							
Quality Control									

MLD 13-07-18
 MF
 13-7-10

POSITIVE RECALL
 EFFECTIVE 13-07-18 AUTH [Signature]
 RELEASED 5 DATE 13-07-18
 to Rev a Day

Picklist Print

July-02-13 10:52:18 AM

Page 1

Work Order ID: 103837
 Parent Item: D4855-3
 Parent Item Name: Antenna Bracket

Start Date: 7/02/13 Required Date: 7/05/13
 Start Qty: 4.00 Required Qty: 4.00

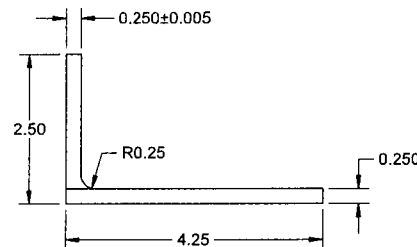
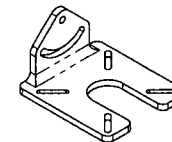
Comments: IPP REV: A NEW ISSUE JFS 13/06/26 VERIFY BY: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B4.500X4.500 6061-T6 Aluminum Bar 4.500" X 4.500"		Purchased	No			100	f	12.3100	0.25	1.0526316			

Location	Loc Qty	Loc Code
MAT004	12.31	
125312	4.31	
M126097	8	

13-07-02

X 1.053



2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "COLOR" (4.3.5.X) PER DART QSI 005 4.3

3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED

4) UNITS: INCHES UNLESS OTHERWISE NOTED

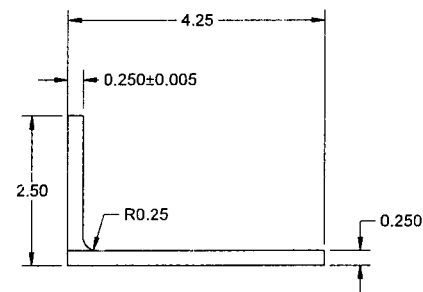
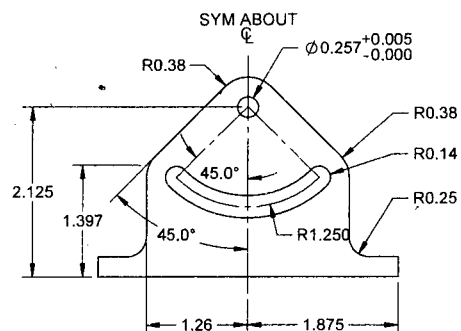
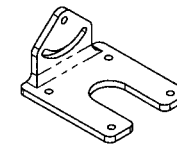
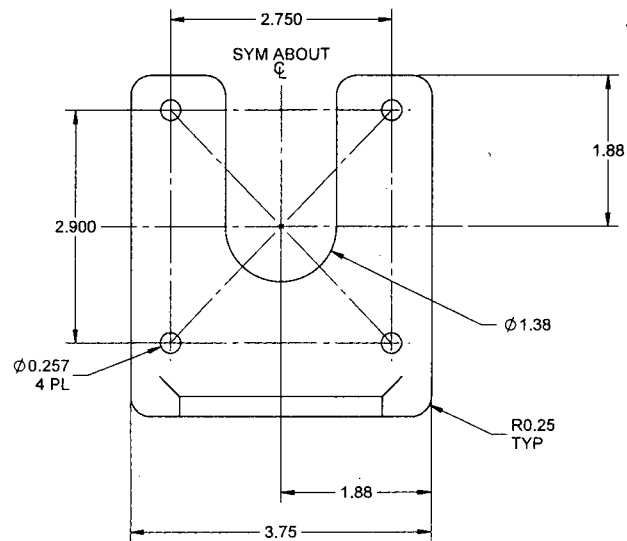
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: ENGRAVE P/N AS SHOWN PER QSI 044 6.3

7) WEIGHT: 0.14 lbs

w/o p3837

A	NEW ISSUE		03	13.05.08
REV.		DESCRIPTION	BY	DATE
DESIGN	03	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D4855 TITLE ANTENNA BRACKET		
DRAWN	03			
CHECKED	DL			REV. PA
MFG. APPR.				SHEET 1 OF
APPROVED				SCALE
DE APPR.				NTS
DATE	13.05.08	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE		



NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
 QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
 OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
 OR ASTM B211 OR ASTM B221
 REF DART SPEC M6061T6B
 OR
 2024-T3/T3510/T3511 ALUMINUM ANGLE
 PER AMS-QQ-A-200/3 OR AMS 4152, 4164 & 4165
 REF DART SPEC M2024T3A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 POWDER COAT "COLOR" (4.3.5.X) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: ENGRAVE P/N AS SHOWN PER QSI 044 6.3
- 7) WEIGHT: 0.15 lbs

D4855-3 ANTENNA BRACKET

DESIGN	<i>OS</i>	DART AEROSPACE LTD	
DRAWN	<i>OS</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>PL</i>	DRAWING NO.	REV. PA4
MFG. APPR.		D4855	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		ANTENNA BRACKET	NTS
DATE	13.05.08	<small>COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

DART AEROSPACE LTD		Work Order:	103837
Description: Antenna Bracket.		Part Number:	D4855-3
Inspection Dwg: D4855 Rev: PA4		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.750	+/- .010	2.750	✓		Vern	GA-01
2.900	+/- .010	2.900	✓		"	"
φ 0.257	+0.006 / -0.001	φ 0.259	✓		"	"
3.75	+/- .030	3.750	✓		"	"
1.88	+/- .030	1.875	✓		H-6	31006
R0.25	+/- .030	R0.250	✓		R-6	ref.
φ 1.38	+/- .030	φ 1.380	✓		Vern	GA-01
1.88	+/- .030	1.880	✓		H-6	31006
φ 0.257	+0.005 / -0.000	φ 0.258	✓		Vern	GA-01
R0.38	+/- .030	R0.375	✓		R-6	ref.
2.125	+/- .010	2.126	✓		H-6	31006
45°	+/- 1/2°	45°	✓		Angle M.	CUC-02
1.26	+/- .030	1.246	✓			
1.875	+/- .010	1.865	✓		H-6	31006
R0.25	+/- .030	R0.250	✓		R-6	ref.
R0.14	+/- .030	R0.140	✓		"	"
2.50	+/- .030	2.498	✓		Vern	GA-01
4.25	+/- .030	4.249	✓		"	"
0.250	+/- .005	0.255	✓		Mic	GA-03
R0.25	+/- .030	R0.250	✓		R-6	ref.
0.250	+/- .010	0.248	✓		Mic	GA-03

Measured by: D.A. DAS 08	Audited by: [Signature]	Preliminary Approval:
Date: 13/07/02 9-89	Date: 15.7.0	Date:

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	

10.04.15

Receiving Report

Date: 13/5/21
 Supplier: THYOSK NH

Batch No: M126087
 Dart P/O: 20203

Packing Slip: Yes ☒ No ☐
 Invoice: Yes ☐ No ☒
 Receipt: Cash ☐ Cr ☒

Release Note Attached: Yes ☒ No ☐ N/A ☐
 Waybill Attached: Yes ☐ No ☒
 Shipment Complete: Yes ☐ No ☒ N/A ☐
 QC6 Inspection gm1306-23 N/A ☒
 Work Order N/A ☒

Discrepancies

Part Number	Description	Quantity Ordered	Quantity Received	Quantity Returned	Quantity Short	Comments

Initials of receiver (if shipment OK) Level 12

Production/Admin: 13/6/21
 Date
 Received/Costing
 Initial

Location

All amounts are calculated in domestic currency.

Grouped by Vendor ID

Purchase Order ID/ Curr Type	Line Nbr/ Insp Req	Project ID	Reference/ Description/ Cert Std	PO U/M / Stock U/M	Required Date Required Qty	Recv Date/ Recv Emp	Recv Qty (PO U/M)	Cost Per Unit/ Recv Value	Inspected Qty/ Rejected Qty (PO U/M)	MRB Qty/ MRB Reject Qty	Book Amt
VendorID/Vendor Name			VC-COP001	Thyssenkrupp Materials CA Ltd							
PO20203	5		M304B1.000X1.000	f	6/24/2013	6/21/2013	12.1000	\$11.77	0.0000	0	\$142.38
CAD	No		304 bar 1.00 x 1.00"	f	12.0000	DESJ02		\$142.38	0.0000	0	
			M126097								
	6		M6061T6B4.500X4.5	f	6/24/2013	6/21/2013	8.0000	\$46.30	0.0000	0	\$370.37
			00		8.0000	DESJ02		\$370.37	0.0000	0	
	No		6061-T6	f							
			AluminumBar 4.500"								
			X 4.500"								
			M126097								
Total Received Quantity:											20.1000
Total Qty to Inspect (PO U/M):											0.0000
Total Reject Quantity:											0.0000
Total Receipt Value:											\$512.75
Total Balance Due Quantity:											0.0000

44

B I L L O F L A D I N G

No: PEC 828006

Ship From:
THYSSENKRUPP MATERIALS NA
2821 LANGSTAFF ROAD
CONCORD, ONTARIO L4K 5C6
Tel: 905 669 9444 Fax: 905-738-9033

Ship Date 19Jun13 at 8:25 From PFW
Probill
Via VIM TRANSFER
FOB CONCORD
Frt PREPAID
Route 0- 0 Manifest
Vhcle Trailer
Slp STAN IVERS (905-532-1350)
Sold To: (20115)
DART AEROSPACE
1270 ABERDEEN ST
HAWKESBURY, ON K6A 1K7

Ship To: (1)
DART AEROSPACE
1270 ABERDEEN ST
HAWKESBURY, ON K6A 1K7
Tel: 613-632-9577 Fax: 613-632-1053

B I L L O F L A D I N G

1) Our Order PEC-578301- 1 Your PO # 20203
ALUMINUM SQUARE BAR 6061-T6511
4.50" X 96.0000"

MTR

Heat Number	Tag No	Quantity	PCS	Wt LBS
21382208	190586	8 FT	1	193

2) Our Order PEC-578301- 2 Your PO # 20203
STAINLESS STEEL SQ BAR 304L
1.00" X 145.0000"

MTR

Heat Number	Tag No	Quantity	PCS	Wt LBS
3X050	190766	12 ' 1.0000 "	1	46

TOTAL:	Tags	PCS	LBS
	2	2	239

Heat Number
21382208
3X050

*** Chemical Analysis ***

MILL TEST REPORTS, PACKING SLIPS ARE TO SENT
WITH MATERIAL AND FAXED TO THE CUSTOMER PRIOR
TO SHIPPING.

ATTN: CHANTAL/LINDA

** ALL PACKING SLIPS MUST HAVE THE HEAT NUMBER **

** REFERENCED ON IT **

TOTAL 2 BDLs G.W. 253 LBS

ITEM (1) BDL

Page: 1Continued

✓ 143/6/21

HL 2 BDL
A-350

TOUTES ERREURS ET/OU MARCHANDISES MANQUANTES DOIVENT ETRE

RAPPORTEES IMMEDIATEMENT

ERRORS OR SHORTAGE MUST BE REPORTED IMMEDIATELY

RETOUR DE MARCHANDISES AVEC NOTRE NUMERO D'APPROBATION SEULEMENT

MERCHANDISE MAY NOT BE RETURNED WITHOUT OUR APPROVAL NUMBER

13/6/11

SHIP FROM:
THYSSENKRUPP MATERIALS NA
2821 LANGSTAFF ROAD
CONCORD, ONTARIO L4K 5C6
Tel: 905 669 9444 Fax: 905-738-9033

Ship To: (1)
DART AEROSPACE

B I L L O F L A D I N G
No: PEC 828006
Ship Date 19Jun13 at 8:25 From PFW
Probill
Via VIM TRANSFER
FOB CONCORD
Frt PREPAID
Route 0- 0 Manifest
Vhcle Trailer
Slp STAN IVERS (905-532-1350)
Sold To: (20115)
DART AEROSPACE

B I L L O F L A D I N G

ITEM (2) BDL

*CUSTOMER PICK-UP HRS AT THYSSENKRUPP MATERIALS NA
CONCORD, ONT.* *** 9:00 AM TO 4:00 PM ***
**** TEL. 800-926-2600 ****

* WE STOCK STAINLESS STEEL *
* PLEASE LET US QUOTE YOUR NEXT REQUIREMENT *

***PLEASE NOTE A \$25.00 ENERGY SURCHARGE WILL BE
ADDED TO EVERY ORDER.***

Page: 2 Last

TOUTES ERREURS ET/OU MARCHANDISES MANQUANTES DOIVENT ETRE
RAPPORTEES IMMEDIATEMENT
ERRORS OR SHORTAGE MUST BE REPORTED IMMEDIATELY
RETOUR DE MARCHANDISES AVEC NOTRE NUMERO D'APPROBATION SEULEMENT
MERCHANDISE MAY NOT BE RETURNED WITHOUT OUR APPROVAL NUMBER

REÇU EN BONNE CONDITIONS / RECEIVED IN GOOD CONDITION
TVQ/GST# 1017327981 TQ001 TPS/GST TVH/HST # 140223934 RT0001

DATE

THYSSENKRUPP MATERIALS NA

DART AEROSPACE

ALUMINUM SQUARE BAR 6061-T6S11

4.50" X 96.0000"

PART NO.

PO/Rel 20203

We certify that this is a true copy of the report furnished by the producer of the metal, or data resulting from tests made in approved labs.

Signed by: _____

Certificate of Mill Test Results

BL PEC-828006-001

19Jun13

Pg 1/2

sapa:

Sapa Industrial Extrusions

53 POTTSVILLE STREET

CRESSONA, PA

17929-0187

Sapa Extrusions Inc., a Subsidiary of Sapa AB

Invoice To Customer

THYSSENKRUPP MATERIALS NA INC

2821 LANGSTAFF ROAD

ATTN: ACCOUNT PAYABLE

CONCORD, ON - L4K-5C6

Ship To Customer

THYSSENKRUPP MATERIALS NA INC

2821 LANGSTAFF ROAD

CONCORD, ON - L4K5C6

Certified Inspection Report

Sales Order Number 1100602244		Line No. 2	Customer P/O PEC-248106-002	Cert Number SAPA757893	Page 1 of 2
Cert Creation Date 02-MAY-13		Cert Print Date 02-MAY-13			

Quantity Shipped 1150 LB	Date Shipped 02-MAY-13	Item Description ACC-U-LINE Extruded ACC-U-BAR	Specification ASTM B221 REV 12A 13-AUB REV AMS-QQ-A-200/8 REV 1997 Meets 6061-T6S11H, 6061-T6S11 REV
B/L 424743	Item No. G03211227	1.500 TK x 4.500 W TK TOL. +.034/- .000 W TOL. +.034/- .000 SECT 550606 144.000 IN LN FIN M-MILL W/F 23.993 F 1 CS 6.37 6061/T6S11H Marking CONTINUOUS;	<i>JM</i> 13-06-23
Delivery Id 4425033	Item No. Rev --		
Customer Part No. 4.5SQ			

Applicable Specifications, Revisions and Exceptions

ACC-U-BAR

COMPOSITION NOTE: The values for 'Others Each' and 'Others Total' have met the limits as shown on this certified inspection report. Remainder is Aluminum.

Legal Statement

We hereby certify that, unless otherwise indicated, the material covered by this report has been manufactured, inspected, and tested in accordance with, and has been found to meet, the applicable requirements described herein, including any specifications forming a part of the description and that samples representative of the material met the composition and had the mechanical properties shown on the face of this certification. Also, note that mercury is not a normal contaminant in aluminum alloys and neither it nor any of its compounds are used in the manufacture of our product. This certification is not to be reproduced in partial form without prior written approval of our Quality Assurance Dept.

Signature And Title

William T. Martin, III

William Martin III

Tech/Quality Manager

02-MAY-13

Quantities per Lot / Packages

Package Number	Lot Number	Quantity	UOM	Weight	
				Gross	Net
G12-PKG1921012	21382208	4	PCS	1157	1150

Composition Limits

Alloy	Si		Fe		Cu		Mn		Mg		Cr		Zn	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
6061	0.40	0.80	---	0.70	0.15	0.40	---	0.15	0.80	1.20	0.04	0.35	---	0.25

THYSSENKRUPP MATERIALS NA

DART AEROSPACE

ALUMINUM SQUARE BAR 6061-T6511

4.50" X 96.0000"

PART NO.

PO/Rel 20203

We certify that this is a true copy of the report furnished by the producer of the metal, or data resulting from tests made in approved labs.

Certificate of Mill Test Results

BL PEC-828006-001

19Jun13

Pg 2/2

Signed by: _____

sapa:

Sapa Industrial Extrusions
53 POTTSVILLE STREET
CRESSONA, PA
17929-0187

Certified Inspection Report

Sales Order Number 1100602244 Line No. 2 Customer P/O PEC-248106-002

Cert Number	Page
SAPA757893	2 of 2
Cert Creation Date	Cert Print Date
02-MAY-13	02-MAY-13

Alloy	Ti		Bi		Pb		Others Each		Others Total	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
6061	---	0.15	---	0.05	---	0.05	---	0.05	---	0.15

Composition Results

Heat / Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Bi	Pb	Others Each	Others Total
4030033	0.70	0.34	0.30	0.11	0.91	0.13	0.03	0.02	---	---	---	---
Heat / Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Bi	Pb	Others Each	Others Total
4030129	0.77	0.43	0.33	0.12	0.94	0.15	0.06	0.02	---	---	---	---

Mechanical Property - Test Limits

Test Type			UTS - L		TYS - L		EL 4D-Long	
TOM			KSI		KSI		PCT	
TYP			---		---		---	
Test Temp	Lot Number	# of Tests	MIN Value	MAX Value	MIN Value	MAX Value	MIN Value	MAX Value
T6511H	21381208	1	55.7	55.7	52.2	52.2	12.2	12.2

Cert Notes

Products manufactured with a T6511 temper also meet T6 temper requirements.

Yield strength has been determined by the 0.2% offset method

All Mill Finish Alloys produced at Sapa Extrusions comply with 0.4% Maximum Lead per ASTM, with the exception of 6262 alloy

In accordance with EN 10204 Inspection Certificate Type 3.1

Melted in the USA or Other Qualified Countries as Defined by DFARS 215.872.1

Made in USA



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO20203**

Purchase Order Date 6/17/2013

PO Print Date 6/17/2013

Page Number 1 of 3

Order From : VC-COP001
THYSSENKRUPP MATERIALS CA LTD
O/A VPK METAL- C/O T27540/PO BOX 4275,POSTAL"A"
TORONTO, ON M5W 5V8
CA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FAKED
6/13/2013

Contact Name
Vendor Phone 905 669 9444

Ship To Contact
Ship To Phone
Ship Via: Yours ppd
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	List Price	Disc %	Discounted Unit Price	Extended Price
1	M174B0.250X4.000 MATERIAL: 17-4 PH SS BAR AS PER AMS 5604/5643 GRAIN MUST BE ALONG LENGHT OF BAR MIN. YIELD TENSILE STRENGTH = 100 KSI MIN. ULTIMATE TENSILE STRENGTH = 150 KSI	17-4 SS Bar .250 X 4.00	6/24/2013 Yes 6/24/2013		12.00 f				\$328.00 ✓
Line Total:									\$328.00
2	M174B1.250X02.000 AS ABOVE	17-4 SS Bar 1.250 x 2.00	6/24/2013 Yes 6/24/2013		24.00 f				\$768.00 ✓
Line Total:									\$768.00 ✓
3	M174B1.500X02.250 AS ABOVE	17-4 SS Bar 1.50 X2.250	6/24/2013 Yes 6/24/2013		24.00 f				\$1,044.00

PO Instructions: QUOTATION: NO. PEC ST-577779
QUOTATION: NO PEC ST-576671

Note:

6/17/2013



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO20203**

Purchase Order Date 6/17/2013

PO Print Date 6/17/2013

Page Number 2 of 3

Order From : VC-COP001
THYSSENKRUPP MATERIALS CA LTD
O/A VPK METAL- C/O T27540/PO BOX 4275,POSTAL"A"
TORONTO, ON M5W 5V8
CA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905 669 9444

Ship To Contact
Ship To Phone
Ship Via: Yours ppd
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB Destination-Collect

Line Total: \$1,044.00

4	M303B1.000X1.000	303 BAR 1" X 1"	6/24/2013	12.00	\$147.48
			Yes	f	
	MATERIAL: AISI 303 SS BAR AS PER ASTM A582 /		6/24/2013		
	NOTE: AISI 303/316 NOT ACCEPTABLE				

Line Total: \$147.48

5	M304B1.000X1.000	304 bar 1.00 x 1.00	6/24/2013	12.00	\$146.40
			Yes	f	
	MATERIAL: AISI 304/316 SS BAR OR AISI 304/316 SS		6/24/2013		
	PLATE AS PER ASTM A276 OR ASTM A240 / NOTE: AISI				
	303 NOT ACCEPTABLE				

12.1 / 13/6/21

Line Total: \$146.40

6	M6061T6B4.500X4.500	6061-T6 Aluminum Bar 4.500" X 4.500"	6/24/2013	8.00	\$384.00
			Yes	f	
	MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM		6/24/2013		
	BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS				
	4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ-A200/8				
	OR AMS 4160 OR ASTM B211 OR ASTM B221				

✓ 13/6/21

PO Instructions: QUOTATION: NO. PEC ST-577779
QUOTATION: NO PEC ST-576671

Note:

6/17/2013



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO20203**

Purchase Order Date 6/17/2013

PO Print Date 6/17/2013

Page Number 3 of 3

Order From : VC-COP001
THYSSENKRUPP MATERIALS CA LTD
O/A VPK METAL- C/O T27540/PO BOX 4275,POSTAL"A"
TORONTO, ON M5W 5V8
CA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905 669 9444

Ship To Contact
Ship To Phone
Ship Via: Yours ppd
Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB Destination-Collect

Line Total: **\$384.00**

7	M6061T6S.032	6061-T6 Sheet 0.032"	6/24/2013	384.00	\$520.00
			Yes	sf	
	MATERIAL: 6061-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/11 OR AMS-QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209		6/24/2013		

Line Total: **\$520.00**

8	M7075T73R1.000	7075-T73 Rd Bar 1.00	6/24/2013	36.00	\$195.00
			Yes	f	
	MATERIAL: 7075-T73 OR 7075-T7351/T73510/T73511 ROUND BAR AS PER AMS-QQ-A-200/11 OR AMS-QQ-A-225/9		6/24/2013		

Line Total: **\$195.00**

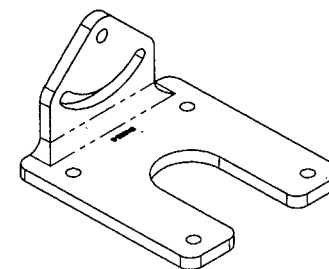
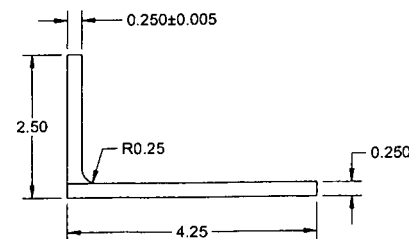
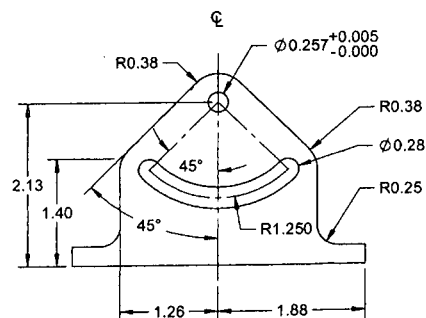
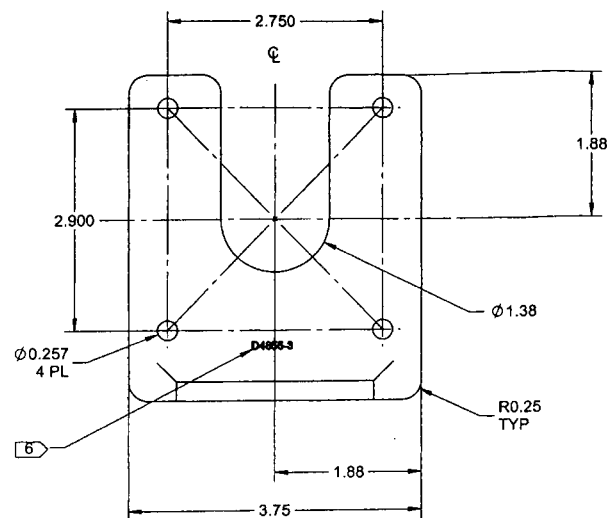
PO Total: **\$3,532.88**

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

PO Instructions: QUOTATION: NO. PEC ST-577779
QUOTATION: NO PEC ST-576671

Note: Pricing listed above is as per contract agreement between Dart Aerospace and the respective manufacturer.
No substitution or deviation without consent.
Certificate of Conformity or Material Certification required ☒ YES ☐ NO

Change Nbr: 2 Change Date: 6/17/2013



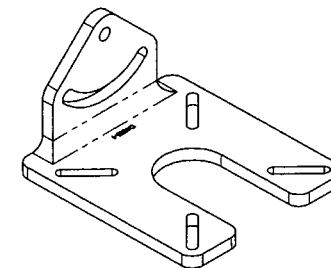
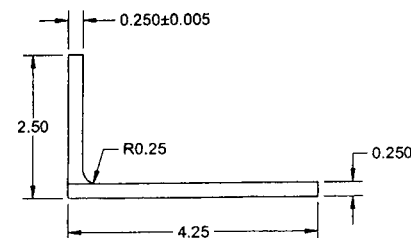
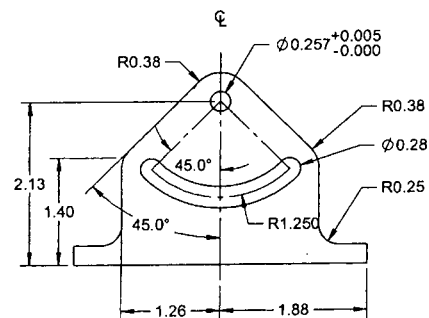
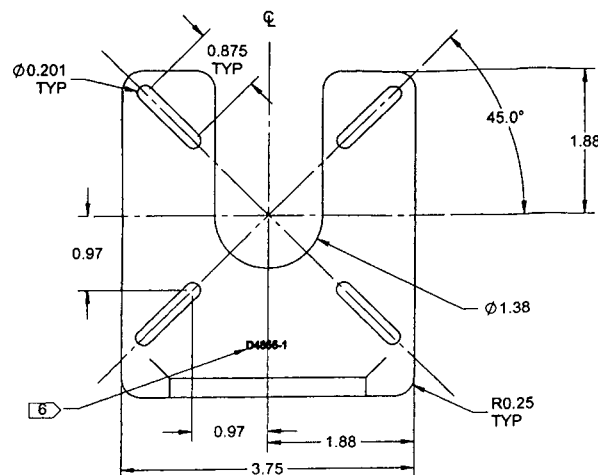
NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
 QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
 OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
 OR ASTM B211 OR ASTM B221
 REF DART SPEC M6061T6B
 OR
 2024-T3/T3510/T3511 ALUMINUM ANGLE
 PER AMS-QQ-A-200/3 OR AMS 4152, 4164 & 4165
 REF DART SPEC M2024T3A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AS SHOWN PER QSI 044 6.3 TO A DEPTH
 OF 0.010±0.005 IN THIS LOCATION WITH TOOL TIP
 RADIUS OF 0.015±0.005
- 7) WEIGHT: 0.15 lbs

D4855-3 ANTENNA BRACKET

DESIGN	03	DART AEROSPACE LTD	
DRAWN	03	HAWKESBURY, ONTARIO, CANADA	
CHECKED	03	DRAWING NO.	REV. A
MFG. APPR.	21	D4855	SHEET 2 OF 2
APPROVED	03	TITLE	SCALE
DE APPR.	03	ANTENNA BRACKET	NTS
DATE	13.05.15	COPYRIGHT © 2013 BY DART AEROSPACE LTD	
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RELEASED
2013-07-16



NOTES:

- 1) MATERIAL: 6061-T6/T6510/T6511/T62 ALUMINUM BAR
QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
OR
2024-T3/T3510/T3511 ALUMINUM ANGLE
PER AMS-QQ-A-200/3 OR AMS 4152, 4164 & 4165
REF DART SPEC M2024T3A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "WHITE" (4.3.5.1) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY AS SHOWN PER QSI 044 6.3 TO A DEPTH
OF 0.010 ± 0.005 IN THIS LOCATION WITH TOOL TIP
RADIUS OF 0.015 ± 0.005
- 7) WEIGHT: 0.14 lbs
- 8) REPACES GENEVA P/N G13013-3

D4855-1 ANTENNA BRACKET

RELEASED
2013-07-16

REV	NEW ISSUE	DESCRIPTION	BY	DATE
DESIGN				
DRAWN				
CHECKED				
MFG. APPR.				
APPROVED				
DE APPR.				
DATE	13.05.15			

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